

## CLAIMS

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is as follows:

1. A probe for attachment to a rotatable probe shaft, for removing undesired viscera from the neck of an eviscerated and decapitated bird carcass comprising:

a support surface including a longitudinal axis,

at least one helical thread extending along said support surface,

a plurality of generally V-shaped voids in said thread for capture of viscera therein.

2. The probe as claimed in claim 1 wherein each thread of said at least one helical threads comprises a pitch of approximately between 30 to 120 millimeters.

3. The probe as claimed in claim 1 wherein each thread of said at least one helical threads comprises a pitch of approximately 60 millimeters.

4. The probe as claimed in claim 1 further comprising a means for attaching said probe to a probe extension rod.

5. The probe as claimed in claim 4 wherein said means for attaching comprises a threaded void in said probe for receiving said probe extension rod therein.

6. The probe as claimed in claim 1 wherein said V-shaped void is an acute angle formed by a first cut and a second cut at an angle of between 5 degrees and 10 degrees from said first cut.

7. The probe as claimed in claim 1 wherein said support surface is generally cylindrical.

8. The probe as claimed in claim 1 wherein said support surface is generally conical.

1        9. The probe as claimed in claim 7 wherein said V-shaped void is an acute angle formed by  
2 a first cut made generally tangent to said cylindrical support surface and said second cut is spaced  
3 approximately between 5 degrees and 10 degrees from said first cut.

4        10. The probe as claimed in claim 9 wherein said second cut is generally tangent to said  
5 cylindrical support surface.

6        11. The probe as claimed in claim 1 wherein at least a portion of said plurality of V-shaped  
7 voids are located along a single line that is parallel to said longitudinal axis of said support  
8 surface.

9        12. The probe as claimed in claim 1 wherein said at least one helical thread comprises:  
10 a first helical thread extending along said support surface from a first starting point,  
11 a second helical thread extending along said support surface from a second starting point,  
12 and  
13 a third helical thread extending along said support surface from a third starting point,  
14 wherein said first, second and third starting points are each spaced at generally 120  
15 degrees from each other about a cross-section perpendicular to said longitudinal  
16 axis of said support surface.

17        13. The probe as claimed in claim 1 wherein an outer perimeter of said at least one helical  
18 thread defines a maximum probe diameter.

19        14. The probe as claimed in claim 13 wherein said maximum probe diameter is greater than a  
20 distal end diameter.

- 1 15. The probe as claimed in claim 1 wherein said support surface and/or said at least one
- 2 helical thread are flexibly structured.

1        16. A probe for attachment to a rotatable probe shaft, for removing undesired viscera from  
2        the neck of an eviscerated and decapitated bird carcass comprising:  
3        a support surface,  
4        a plurality of teeth protruding from said support surface, each of said plurality of teeth  
5                including a tooth end, a leading surface and a trailing surface, said trailing surface  
6                diverging from said leading surface away from said tooth end, and  
7        a void comprising an acute angle formed between a trailing surface of a lead one of said  
8                plurality of teeth and a leading surface of another one of said plurality of teeth  
9                which trails said lead one of said plurality of teeth.

10       17. The probe as claimed in claim 16 wherein at least a portion of said plurality of teeth are  
11       positioned in at least one helical pattern along said support surface.

12       18. The probe as claimed in claim 17 wherein at least another portion of said plurality of teeth  
13       are positioned in at least another helical pattern along said support surface, said at least another  
14       helical pattern being spaced apart from said at least one helical pattern.

15       19. The probe as claimed in claim 16 wherein said trailing surface of each of said plurality of  
16       teeth defines a maximum probe diameter.

17       20. The probe as claimed in claim 19 wherein said maximum probe diameter is greater than a  
18       distal end diameter.

19       21. The probe as claimed in claim 16 wherein said support surface and/or said plurality of  
20       teeth are flexibly structured.

- 1        22. The probe as claimed in claim 16 further comprising a lead-in for said lead one of said  
2        plurality of teeth, said lead-in not comprising a trailing surface of any of said plurality of teeth.

1        23. A probe for attachment to a rotatable probe shaft, for removing undesired viscera from  
2        the neck of an eviscerated and decapitated bird carcass comprising:  
3        a support surface including a longitudinal axis,  
4        at least one helical thread extending along said support surface, said at least one helical  
5        thread including an outer perimeter, said outer perimeter defining a maximum  
6        probe diameter,  
7        a plurality of voids in said at least one helical thread for capture of viscera therein, and  
8        a distal end diameter, said distal end diameter being smaller than said maximum probe  
9        diameter.

1        24. A cam for use in food processing machinery comprising:  
2            a frame,  
3            a first plastic guide attached to said frame, said first plastic guide being pre-shaped to  
4            define a first follower boundary on said frame, and  
5            a second plastic guide attached to said frame spaced apart from said first plastic guide,  
6            said second plastic guide being pre-shaped to define a second follower boundary  
7            on said frame.

8        25. The cam as claimed in claim 24 wherein said frame comprises:  
9            an upper support member adapted to be mounted to a vertical axle,  
10          a lower support member adapted to be mounted to the vertical axle, and  
11          a plurality of vertical support members connected to said upper and said lower support  
12          members, said vertical support members adapted for attachment to said first and  
13          said second plastic guides.

14       26. The cam as claimed in claim 25 wherein each of said plurality of vertical support  
15       members includes a plurality of connection points adapted to universally attach to first and/or  
16       second plastic guides of varying follower boundaries.

17       27. The cam as claimed in claim 26 wherein said plurality of connection points comprise a  
18       plurality of circular voids extending through each of said plurality of vertical support members.

19       28. The cam as claimed in claim 24 wherein said first and second plastic guides are pre-  
20       shaped in two dimensions.

1        29. The cam as claimed in claim 28 wherein said first and second follower boundaries exist in  
2        three dimensions.

3        30. The cam as claimed in claim 29 further comprising a removable connection to attach said  
4        first and second plastic guides to said frame.



1        31. A method of manufacturing a cam for use in food processing machinery comprising the  
2 steps of :  
3        establishing a desired three-dimensional follower boundary about a cam,  
4        determining a two-dimensional representation of said desired three-dimensional follower  
5        boundary,  
6        utilizing said two-dimensional representation to shape a plastic guide in two dimensions,  
7        wrapping said plastic guide about the cam along said desired three-dimensional follower  
8        boundary to form a follower boundary.

9        32. The method as claimed in claim 31 further comprising the step of repeating said  
10        establishing, determining, utilizing and wrapping steps to form additional follower boundaries.

11       33. The method as claimed in claim 31 further comprising the step of attaching said plastic  
12       guide to the cam.

13       34. The method as claimed in claim 33 wherein said plastic guide is attached to said cam via  
14       a removable connection.